

**ABSTRACT OF THE INVENTION**

The present invention relates to a method for preconditioning healthy donor's myoblasts *in vitro* before transplantation thereof in compatible patients suffering of recessive myopathies, particularly of muscular dystrophy. This *in vitro* preconditioning improves the success of the transplantation while not requiring an *in vivo* preconditioning of the patient's muscle by irradiation or by administering muscular toxin. The invention further relates to compositions comprising such preconditioned myoblasts. The preconditioning comprises pre-treating the transplanted myoblasts with human fibroblast growth factor (bFGF). The transplantation is made with the whole culture along with bFGF. A concentration of 100 ng/ml bFGF improved the myoblasts fusion by a four fold average.

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